

(12) United States Patent

Watanabe et al.

US 9,636,548 B2 (10) Patent No.: (45) Date of Patent: May 2, 2017

(54) MULTI-PIECE SOLID GOLF BALL

(71) Applicant: Bridgestone Sports Co., Ltd., Tokyo

(72) Inventors: Hideo Watanabe, Chichibushi (JP);

Akira Kimura, Chichibushi (JP)

Assignee: Bridgestone Sports Co., Ltd., Tokyo

Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 58 days.

(21) Appl. No.: 14/859,802

(22)Filed: Sep. 21, 2015

(65)**Prior Publication Data**

> US 2016/0151677 A1 Jun. 2, 2016

(30)Foreign Application Priority Data

Nov. 27, 2014 (JP) 2014-240420

(51) Int. Cl.

A63B 37/06 (2006.01)A63B 37/00

(2006.01)

(52) U.S. Cl.

CPC A63B 37/0076 (2013.01); A63B 37/0068 (2013.01); A63B 37/0077 (2013.01); A63B 37/0084 (2013.01); A63B 37/0087 (2013.01); A63B 37/0092 (2013.01); A63B 37/0046 (2013.01); A63B 37/0065 (2013.01)

(58) Field of Classification Search

CPC A63B 37/0084; A63B 37/0076 USPC 473/376 See application file for complete search history.

(56)References Cited

U.S. PATENT DOCUMENTS

6,913,547	B2	7/2005	Cavallaro et al.
7,335,115	B1	2/2008	Watanabe et al.
7,625,302	B2	12/2009	Watanabe et al.
7,918,749	B2	4/2011	Watanabe et al.
8,523,707	B2	9/2013	Watanabe et al.
8,764,584	B2	7/2014	Watanabe et al.
8,771,103	B2	7/2014	Watanabe et al.
9,433,832	B2 *	9/2016	Watanabe A63B 37/004
2014/0194221	A1*	7/2014	Watanabe A63B 37/0092
			473/373

FOREIGN PATENT DOCUMENTS

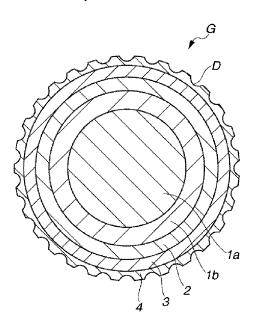
4017228 B2

Primary Examiner — Raeann Gorden (74) Attorney, Agent, or Firm — Sughrue Mion, PLLC

ABSTRACT

In a multi-piece solid golf ball having a core, an envelope layer, an intermediate layer, and a cover with a plurality of dimples thereon, the core is a two-layer core consisting of an inner core layer and an outer core layer each formed primarily of a base rubber, the envelope layer, the intermediate layer and the cover layer are each composed of at least one layer and formed primarily of a synthetic resin material, and the initial velocities and surface hardnesses of the core, the envelope layer-encased sphere and the intermediate layer-encased sphere are designed within specific ranges. This golf ball satisfies at a very high level the flight and control performances expected for use by professional golfers and skilled amateurs, has the ability to move forward on a straight path particularly on full shots, and also has an excellent scuff resistance.

8 Claims, 1 Drawing Sheet



^{*} cited by examiner